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AMERICAN SANITATION IN THE PHILIPPINES AND ITS INFLUENCE ON THE ORIENT.

(Read December 7, 1917.)

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Sanitation is constantly becoming more exact. America's work in the tropics has contributed greatly to that end. The public is beginning to realize that science is rapidly reaching the point at which the proper expenditure of definite sums of money may be counted on to produce proportionate reductions in the morbidity and mortality rates. Every dollar wisely invested should produce an appreciable improvement. It does not necessarily follow that great sums of money are required. We are all aware of the marvelous results which were obtained by our health department in Panama. It is not so well known that equally striking results on a far greater scale were obtained in the Philippines. In Panama the cost has been given as approximately \$3.38 per capita per annum. In the Philippines the cost was about 20 cents, and the results were obtained under civil conditions without the use of military force or extraordinary powers. The entire cost of the sanitation was defrayed by the revenues of the Philippine government. When it is remembered that the Filipinos are among the lowest taxed people on earth, it will be apparent that it should be quite possible to achieve in countries with greater resources even better results than were accomplished in those far-away islands. Since my return to America it has been a great shock to me to find this country in many respects far behind in health accomplishment and to discover that sanitary procedures which have been in force and have been producing good results for many years in the Philippines are now only gradually coming into use and are being heralded as among the most modern and recent advances.

Soon after the occupation of the Philippines, a board of health was organized under Army General Orders No. 15, under the

authority of which army officers did good work and made an excellent beginning in reducing the ravages of certain diseases which they found very prevalent. This work was largely concerned with protecting the health of the troops and was chiefly confined to the city of Manila.

When the civil regime began, in addition to deplorable sanitary conditions resulting from centuries of neglect, the newly created civil board of health found itself confronted with a severe outbreak of plague in Manila and in a number of the provinces. To add to these difficulties, the board of health had scarcely opened its offices before there began one of the severest epidemics of cholera that has been known in modern times. In a little more than a year it numbered over 300,000 victims, of whom 150,000 or more died.

When the civil board of health began its work 40,000 persons were dying annually from smallpox. Beriberi in jails and public institutions was responsible for a large number of deaths. There was no governmental provision for the insane, and more than 3,000 of these unfortunate individuals were without adequate care. The sanitary condition of the prisons throughout the islands left much to be desired. With the exception of the water system which was available for a part of Manila, and possibly a few other minor installations, there was not a reservoir, pipe line, or artesian well for the seven or eight million people of the entire archipelago, and even the water for Manila was known to be grossly polluted. The burial of the dead was not properly regulated. In making new interments, the bones of those who had been previously buried were frequently cast out to bleach in the sun or were thrown upon a bone pile. The city of Manila, with its population of over 200,000, had no sewer system. Disease-carrying human discharges found their way into esteros or canals or were deposited directly on the ground, causing serious soil pollution.

Sections of Manila varying in population from 5,000 to 25,000 were built up with houses so closely crowded together that there was no room for streets and alleys. Entrance and egress, in many instances, had to be made by passing under the houses. As most of these crowded sections were built over tidal flats, the difficulties of the situation can well be imagined.

There were no adequate building laws, and, as a result, too frequently the case in Oriental countries, small dark interiors with no light or air were the rule. Street cleaning was most indifferently carried out. Large quantities of garbage and other filth accumulated in the back yards and upon the streets. Tuberculosis was probably responsible for at least 50,000 deaths per annum, and no general education measures were in operation with a view to teaching the people how to combat disease.

There was no food law in the modern sense. Perishable provisions were sold under insanitary conditions. The vilest class of food products was often shipped into the country. There was practically no inspection of animals before slaughter, neither were there suitable slaughter-houses. Dysentery soon caused sad havoc among the American troops and among those who came in civil capacities. Subsequent investigation showed that the native population also suffered severely from this cause.

Hospitals for the masses, with modern operating rooms and surgical equipment, were practically unknown. Persons died on every hand with diseases which could have been relieved by ordinary medical procedures. It was not uncommon to find victims horribly deformed by conditions resulting from injuries or disease that could have been cured without deformity if skilled attention and facilities had been available in the beginning. There were perhaps a half million persons living in a wild state, for whom there was no medical relief.

In the days prior to American control, maritime quarantine was often conducted upon a basis of graft. Naturally the result of such lax methods was the introduction from nearby foreign countries of dangerous communicable diseases such as plague, cholera, and small-pox. More than 5,000 lepers were at large throughout the Philippine Islands. A few hundred were cared for by charity, but there was no attempt to segregate lepers with a view to avoiding the danger of infection or bringing the disease under control in the entire archipelago. Malaria, likewise, prevailed in hundreds of towns and there was no quinine with which to combat it. Imitation quinine pills were frequently sold at fabulous prices in the

stricken districts, and the people had no means of relief or redress from this intolerable condition.

It would be a pleasure to state that all the evil conditions mentioned above, as well as others, have been remedied, or relieved. This, however, is not the case. At best, in the time which has elapsed and with the funds available, it has been possible only to make a good beginning. Much ridicule was cast upon the efforts of the American government to better the sanitary conditions of an Oriental population. It had been a fairly well-established rule in other countries, in dealing with dependent peoples, to permit the masses to live as they would and to direct efforts at sanitation largely toward the benefit of Europeans. This policy, of course, was not in accordance with the views of the people of the United States, happily for the residents of the Philippine Islands, who are now enjoying most of the benefits available to the residents of Europe or America. The American sanitarian had much to learn, and in the beginning his efforts were further hampered by the passive opposition of the bulk of the population.

The first campaign against cholera was not as successful as could have been wished, but it paved the way to attacking future outbreaks with greater result. It soon became apparent that nothing was to be gained by the use of force. Methods of coöperation and of winning the confidence of the people were rapidly substituted for more drastic measures in controlling the disease. Early efforts to combat plague, also, did not meet with complete success, although better results were obtained than with cholera. In dealing with plague, not only Filipinos but Chinese and other races had to be considered. Efforts to bring the foreigners to the ways of the twentieth-century hygiene often would have been ridiculous had the outcome not been so tragic.

In brief, it may be stated that the American policy has been to bring about a sanitary regeneration of the Philippine Islands, not in spite of the Filipinos, but with their coöperation and assistance.

One of the first steps was to organize some 300 boards of health throughout the islands, with Filipinos in charge. In many cases the officials who composed these boards were brought to Manila and

given a course of instruction in modern sanitation and hygiene. This resulted in efficient coöperation. It is but natural that a people should resist health measures which they believe are enforced by the governing power for the purpose of making them miserable, unhappy, and uncomfortable. When it became apparent that cholera seldom occurred among Americans who drank only boiled water and ate only cooked food served hot, these practices soon had imitators among the better-class Filipinos and from them gradually spread to the masses.

Vaccination had been practiced in the Philippines for several centuries, but was never done in a systematic manner so as to reach all the population. The result was that a favorable soil for small-pox remained, and unvaccinated individuals were constantly attacked. Over 10,000,000 vaccinations were made in the Philippines, without the loss of a life or limb. As province after province fell into line, the disease disappeared in the wake of the vaccinators, so that the number of deaths was reduced from 40,000 per annum to a few hundreds.

The Island of Culion was set aside for a leper colony. The construction of a modern town was begun. When it had proceeded sufficiently far, the collection of lepers was started. More than 4,000 now find their home on the island, thus giving America the distinction of having the world's largest leper colony. A laboratory for the study of leprosy has been established, in which every effort is made to find and use remedies believed to be efficacious in the treatment of the disease. Considerable success has been had through the administration, by the hypodermic method, of a chaulmoogra-oil mixture. A number of apparent cures have taken place. Most of the Oriental countries are now giving this treatment a trial and cures have already been reported from many of them.

In Manila, a modern water system has been constructed at a cost of approximately two million dollars. The water is obtained from an uninhabited watershed, an improvement which has resulted in a reduction of approximately 800 deaths annually. Water has also been made available in many sections of the city not previously supplied. At a cost of another two million dollars, a modern sewer system was installed.

Hundreds of artesian wells have been bored in different parts of the islands. In many sections in which artesian-well water is exclusively used, the death rate has fallen one half.

Beriberi, which in former days caused frightful mortality in jails and public institutions, has been brought under control through a governmental order which prohibits the use of polished rice in public institutions. This fact is gradually coming to the attention of the masses, and there is reason to hope that in the future the number of deaths from beriberi among the general population will be considerably reduced.

Modern sanitary market buildings constructed of reinforced concrete have been built all over the archipelago. These have been a great factor in the cleanly and economical distribution of food and at the same time an important source of municipal revenue.

It is the frequent comment of travelers that Manila is one of the cleanest cities of the world. The streets are swept daily. Garbage is collected every night. Largely as a result of these two measures, Manila is almost a flyless city. Plague has been eradicated. By making available safe water and by active educational propaganda, the spread of amebic dysentery has been checked. Laws are now enforced for the proper laying-out of cemeteries, and for proper burials. Streets and alleys have been cut through the congested districts of the city. Many thousands of residents have been removed from low swampy lands to higher sites. Modern, dangerous-communicable-disease hospitals have been built in Manila and elsewhere, and the people, educated to an appreciation of such institutions, now willingly avail themselves of their use. The government has built a hospital for the insane, where at least the more violent cases and those urgently in need of care can receive attention. A large general hospital, with a capacity of 350 beds, has been built in Manila. It is one of the most modern in the Orient. A nurses' training school, with over 300 young Filipino students, men and women, is in successful operation; its graduates are already rendering most important service. A medical school, with modern laboratories and the latest equipment for teaching by whole-time instructors who are specialists in their respective branches, was organ-

ized in 1906. It has a five-year course and its graduates are assuming positions of medical responsibility. An anti-tuberculosis society has been formed, and an active educational propaganda is in progress. A hospital has been established at Baguio for incipient cases of tuberculosis, and sanatoria are being conducted in Manila and other places.

Manila now has the most complete set of sanitary ordinances of any city in the world, and in many directions greater sanitary progress has been made than elsewhere. No doubt many of the countries in the Orient feel themselves compelled to join the movement for modern sanitation instituted in the Philippines. They well understand that the crystallized opinion of the world demands more and more that conditions in other Oriental countries must be made to compare with those of higher standard. Before the lepers of the Philippines were segregated, scarcely any Eastern country had segregated lepers. The maritime quarantine practices of the Philippines are being emulated, and agreements are being entered into between the different countries for the control of dangerous communicable diseases.

Largely through the efforts of the medical men of the Philippines, the Far Eastern Association of Tropical Medicine was organized. This bringing together of the medical profession of the various countries has resulted in the promotion of good will and the interchange of ideas, all of which has been mutually beneficial. Instead of viewing the medical men of the Philippines with suspicion, their brethren of other countries now meet with them in full fraternity. The influence that this has had in promoting better understanding and progress can scarcely be estimated. Previous to America's advent in the Orient, fraternizing among the officials in the different countries was scarcely known. Each remained in his own little sphere and much labor and effort were wasted in solving problems which had already been successfully met in other lands. Now there is free interchange of ideas and the knowledge gained in one country is available in a very short time in others.

The death rate in Manila was reduced from 46.83 in 1904 to 23.18 in 1914. This means a saving of over 5,000 lives per annum.

The total reduction throughout the islands is more than 60,000 lives a year. The death rate among the civil employees steadily declined and in 1915 was 3.88 per thousand per annum. It is small wonder that results such as these, achieved entirely under civil regime and with the limited revenues of the islands, should commend themselves to other countries, and it is a fact that the achievement of American sanitation in the tropics has produced a profound impression. When the Rockefeller Foundation, through its International Health Board, entered the field, it found the world in a receptive mood toward American methods.

The conception that the establishment of public-health agencies can be stimulated through hookworm control has won rapid acceptance and has already a good record of achievement. It is realized that if public-health measures are to be successful they must be brought about upon the demand of the people rather than be imposed upon them. To gain this end much effort has been expended in bringing home to the people of tropical countries the practicability of curing hookworm disease.

This disease is one of the few over which the medical profession exercises complete control: first, its cause is definitely known; second, a person afflicted with it can be cured with certainty; third, its prevention is completely practicable. Furthermore, when measures to prevent soil pollution are carried out, other intestinal affections such as typhoid, cholera, and dysentery, largely disappear. Thus, the improvement made in public health more than justifies the money spent in hookworm control.

Even more important is the interest awakened in the people. The work in connection with the relief and control of hookworm infection comes very close to the home life. It causes the speedy substitution of rosy cheeks for pale anemic faces, a result that can be understood by the most ignorant of the community. Moreover, credulity is not strained by being asked to believe in bacteria which can not be seen and which too often are regarded as mythical. The worms which are expelled are plainly visible to the naked eye. Hookworm measures, then, are capable of creating a genuine interest in public health in the masses, who, quickened to a reali-

zation of the possibilities from control measures, soon demand relief from other preventable diseases. Health officers are sought and their work is welcomed instead of being regarded as an intrusion upon personal liberty. The interest which was awakened by the achievements of the American sanitarian is being followed up by the International Health Board through coöperation with the governments of many countries. In the East alone, coöperative measures have been carried out in Egypt, India, Ceylon, Straits Settlements, Seychelles, Fiji, Papua, Siam, Java, Australia, and negotiations are in progress for the further extension of the work. Thus the United States, a nation that was almost entirely ignorant of tropical sanitation when it entered upon its war of 1898, is now gradually assuming a position of importance in this remarkable field. The establishment of educational institutions has followed hand in hand with the sanitary work, so that in the future the natives of the Philippines may have the knowledge to achieve health results for themselves.

An important outcome of America's entrance into the field of tropical sanitation is the reflex stimulus which has been produced in the United States. We are emulating in our own country the wonderful achievements which we ourselves have helped to accomplish in the tropics. But the greatest effect has been to the world at large. The impetus which sanitation in the Orient has received during the past few years has contributed greatly to the well-being of mankind, and America's efforts, which have been made largely through altruistic motives, have added no small share.

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